DEFINITIONS AND RESOURCES ON SUSTAINABLE FORESTRY

1. Forest-Related Sustainability Definitions

Sustainability

"…sustainability is ultimately about balancing resource demand with resource supply over the long term." *Donald W. Floyd, Sarah L. Vonhof, and Heather E. Seyfang. "Forest Sustainability: A Discussion Guide for Professional Resource Manager", Feb 2001 Journal of Forestry, p.9.*

Sustainable Forest

"The defining values of the sustainable forest vary tremendously among people. Parks or preserves, habitat or watershed mosaics, multiple-use or industrial forests, short-rotation farm plantations are all sustainable from some point of view if the conditions in which they grow balance inflows and outflows over time" *Jeff Romm, "Sustainable Forests and Sustainable Forestry" (quoted in Floyd, Vonhof and Seyfang, Feb 2001, p9)*

"the capacity of forests, ranging from stands to ecoregions, to maintain their health, productivity, diversity, and overall integrity in the long run, in the context of human activity and use" *(Helms, 1998, "The Dictionary of Forestry") (quoted in Floyd, Vonhof and Seyfang, Feb 2001, p9)*

Sustainable Forestry/Sustainable Forest Management

[One type of foresters] group (A) regards the land as soil, and its function as commodity-production; [another type] group (B) regards the land as a biota, and its function as something broader…group A is quite content to grow trees as cabbages, with cellulose as the basic forest commodity. Group B, on the other hand, … employs natural species, and manages a natural environment rather than creating an artificial one. Group B prefers natural reproduction on principle. It worries on biotic as well as economic grounds about the loss of species….It worries about a whole series of secondary forest functions: wildlife, recreation, watersheds, wilderness areas." *Aldo Leopold, Sand County Almanac 1949, p221*

"…maintaining the forest for a long time, showing concern for the well-being of future generations, making reasonable estimates of future needs, knowing current rates of resource use and regeneration, and reaching consensus on appropriate levels of resource use." ***Donald Floyd, Sarah Vonhof, and Heather Seyfang, Forest Sustainability: A Discussion Guide for Professional Resource Managers, Journal of Forestry, February 2001, p.8.***

"…the continued existence and use of forests to meet human physical, economic, and social needs, the desire to preserve the health of forest ecosystems in perpetuity, and the ethical choice of preserving options for future generations while meeting the needs of the present." *Sourcebook on Criteria and Indicators of Forest Sustainability in the Northeastern Area, Draft, July 2001*

"…meet the needs of the present without compromising the ability of future generations to meet their own needs by practicing a land stewardship ethic which integrates the reforestation, managing, growing, nurturing, and harvesting of trees for useful products with the conservation of soil, air and water quality, wildlife and fish habitat, and aesthetics." *American Forest & Paper Association SUSTAINABLE FORESTRY PRINCIPLES AND IMPLEMENTATION GUIDELINES as approved by AF&PA Board of Directors on October 14, 1994, web site: http://www.woodcom.com/woodcom/afpa/afpabp02.html*

"… a type of management that views the forest not as the source of any one economic product (e.g., timber, paper or mushrooms) or service (e.g., recreation or water supply), but as an integrated, ecological whole encompassing countless values, products and services. …[it] is intended to respect the full range of environmental, social and economic values of the forest, and to integrate the way those values are managed to ensure that none are lost and that the forest remains healthy and vibrant into the future. *Roundtable on Sustainable Forests, A Partnership for the Future, web site: http://www.sustainableforests.net/*

"…the practice of meeting the forest resource needs and values of the present without compromising the similar capability of future generations." Note sustainable forest management includes practicing a land stewardship ethic that integrates the reforestation, managing, growing, nurturing, and harvesting of trees for useful products with the conservation of soil, air and water quality, wildlife and fish habitat, and aesthetics." *UN Conference on Environment and Development, Rio de Janeiro, 1992*

"…'good management' and utilization of forests and forested areas in such a way and at such intensity that their biological diversity, productivity and regenerative capacity, their vitality, and their capacity to fulfill, now and for the future, their pertinent ecological, economic and social functions at the local, national and global levels, be maintained, without thereby doing harm to other ecosystems." *Ministerial Conference on the Protection of Forests in Europe, Helsinki, 1993, from International Union of Forest Research Organization, http://iufro.boku.ac.at/iufro/publications/occ-p9/occp9-1.htm*

"…maintain and enhance the long-term health of our forests ecosystems, for the benefit of all living things both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations." *Canadian Institute of Forestry/Institut forestier du Canada, Canada Forest Accord May 1, 1998, http://www.cif-ifc.org/nfscommitments99.html*

"Ecologically sustainable forest use implies optimizing the tangible and intangible social and economic benefits which forest can provide to the community, with the goals of maintaining the functional basis of forested land, biodiversity, and the options available for future generations." *The Australian National University, School of Resources, Environment and Society Source: Ecologically Sustainable Development Working Groups, 1991 http://www.anu.edu.au/Forestry/silvinative/definitions/silvi.html*

"Sustainable forestry may be defined as an approach to forest utilization and management that recognizes:

- that human societies and economies exist within, and are dependent on, the natural ecosystem;
- that the resources of the earth are finite;
- that all organisms have a right to exist and share in the earth's bounty; and
- that the present human generation must respect the rights and needs of future generations"

Appalachian Sustainable Forestry, http://www.uky.edu/OtherOrgs/AppalFor/

"…forest management that:

- maintains the forest, its ecological functions, processes and overall structure, in healthy condition, in perpetuity;
- does not degrade soil or water quality;
- does not produce any irreversible consequences or losses to biological diversity, including genes, species, ecosystems, and forest types (i.e. no extinctions);
- applies to the entire forest as an integrated, ecological whole, rather than to any single component or product of the forest;
- can be either active or passive, and does not require the extraction or harvest of a particular product from the forest;
- can be applied to any size or scale of management area, e.g. individual forest management unit or ecosystem, watershed, landscape, forest type, bio-region, nation, etc.; provided, however, that at each different scale, sustainability must be assessed entirely within the boundaries of the defined unit or region; and
- can produce a wide range of environmental, social and economic benefits to society, depending on the scale of the management area and its capabilities and carrying capacity."

International Tropical Timber Organization (ITTO), from William E Mankin, Director, Global Forest Policy Project, http://www.itto.or.jp/newsletter/v8n3/07.html)

Sustainable forestry is a balance of three things: maintaining ecological integrity, meeting the landowner's needs and desires, and providing societal benefits.
Appalachian Sustainable Development, http://www.appsusdev.org/for/whatis.html

2. Indicator Process-Related Definitions

Some words commonly used in indicator processes are often defined differently and used to mean different things in different cases. This list below is an attempt to explain the most common meanings and how these terms are used in this toolkit. However, it is important that the meanings of these terms be clarified by the people using the terms to avoid confusion.

Vision: The overarching picture of where a community wants to be in 20-50 years in terms of its forest and other natural resources, social and economic development. A vision is not something that can be achieved quickly and easy but rather requires a constant commitment from all community members to work for improving various aspects of their community defined through goals, targets, and indicators.

Goal: description of a future condition that community members wish to achieve. Goals usually refer to a long-term vision and look at the entire community like a system rather than a specific area or project with limited impact.

Criterion: In the context of the Montreal Process Criteria and Indicators, a criterion is a category of conditions or processes by which sustainable forest management may be assessed. The seven Criteria in the Montreal Process are seven categories or topics that must be reviewed or assessed in order to determine if a forest is sustainable. Another common use of the term criterion is as a means of judging; a test by which something can be judged. In this toolkit, when the term Criteria or Criterion is capitalized, it refers to the MP C&I meaning of the word - one of the seven specific categories or topics that must be considered for assessing sustainable forestry. When it is not capitalized, it refers more generally to a test by which something can be judged or assessed.

Indicator: An indicator is something that provides information about a system including the condition or changes in the system or the condition or changes in forces that affect the system over time. Generally an indicator's purpose is to show you how well a system is working. If there is a problem, an indicator can help you determine what direction to take to address the issue. In this toolkit, the term "indicator" is used to refer to numerical indicators, that is, something that can be measured and for which changes can be reported over time. Another common use of the term "indicator" is as something that implies that there is a problem, however, in this toolkit, the term "indication" will be used for this meaning. For example, a large number of dead trees in a forest is an indication that there may be a problem, but it does not provide enough information to make decisions on how to solve the problem.

Data: Data are the values of indicators at particular points in time and can be thought of as the raw materials that are used to create indicators. To have a good indicator you need good data – individual measurements, collected over a period of time. An indicator is a variable and the data are the actual measurements that this variable can take. Thus, when the data of an indicator are put together, they form a "time-series" that makes it possible to analyze trends over time.

Target: A target is a desired future value that an indicator could take. Targets are usually set for shorter periods of time – between 1-2 and 10 years - than the overall goal period (20 to 50 years). Targets serve as milestones in the process of achieving a goal or a vision and lead to initiating corrective actions.

Benchmark: Benchmark is a term used to mean several different things. One commonly used meaning is as a "target." In this sense, a "benchmark" is a desired value for an indicator at some point in the future. Another commonly used meaning is as a "standard." In this sense, a "benchmark" is a value that others have achieved with their indicators or have set as a worthwhile value to aim for. Related to this meaning, is the use of the term to include all of the actions required to achieve a certain value for an indicator. In this case, "benchmarks" means "best practices."

3. List of resources and organizations working on sustainable forestry

Montreal Process Criteria and Indicators, by the Montreal Process Working Group, http://www.mpci.org/home_e.html
This web site provides general information about the Montreal Process and lists all seven criteria and 67 indicators. Additional information is provided for selected criteria and indicators.

Sustainable Forest Management Community Handbook for the Great Lakes Region, by Maureen McDonough, Leigh Ann Spence, and Wendy Hinrichs Sanders, May 2002, available at http://www.lsfa.org/pub_SFM_handbook.html
This is a planning tool developed through a collaborative process including forest resource professionals and community leaders, and designed to help communities throughout the Great Lakes area. It offers step-by-step guidelines for communities on how to plan and evaluate their progress toward sustainable forest management. The handbook discusses the birth of criteria and indicators and provides a list of indicators for the Great Lakes area. Each indicator is supplemented with detailed guidance on how to find the necessary data and what additional resources to use. The handbook includes a series of case studies from the Great Lakes area.

User's Guide to Local Level Indicators of Sustainable Forest Management, by the Canadian Model Forest Network. The guide describes 12 different 'Model Forests' where communities used the MP C&I as a basis for sustainable forest resource management. The guide documents' each model forest's approach to initiating a local level indicator program, selecting indicators, gathering data, and using and reporting on indicators. There are lists of relevant publications, complete sets of each model forest's indicators, a comparison of approaches to local level indicators across the model forest network, and contacts for more information. A free copy of the Guide in English and French (specify which) is available from modelforest@nrcan.gc.ca,
web site http://www.modelforest.net/e/home_/loca_/usersgue.html

The Great Lakes Forest Alliance, *"Assessing Progress in Sustainable Forest Management: Proposed Criteria and Indicators for the upper Great Lakes Region"*, June 4, 1998, web site: http://www.lsfa.org/pub_GLFA_rep2.html
This is an excellent example of both theoretical and practical work to develop sustainable forest management (SFM) indicators. The work was carried out by a consulting team, which first organized two workshops to involve all interested stakeholders, reviewed a wide range of publications on SFM, and developed a set of indicators for three different scales:

- state/province;
- county/forest management unit; and
- woodlot.

At the end, the GLFA scored the indicators for their value and utility. Using six criteria for good indicators for SFM (relevance to the value, measurability, sensitivity to change, practicality, understandability, and response oriented), the indicators were scored and organized in 5 tables (one for each criterion) with separate columns for each scale. More

than 150 indicators are included – the number is too large but the consultants did not want to use their subjective judgment to screen out some of them. Resulting score can be a good indication of the usefulness of suggested indicators.

North American Test of Criteria and Indicators of Sustainable Forestry http://www.fs.fed.us/institute/cifor/cifor_3.html
This report includes an independent review of various sets of criteria and indicators for sustainable forestry. It identifies some key problems with the standard indicators. Some problems include: no supporting or explanatory material; absent theoretical rationale for indicator selection; and indicators applicable at national level that do not translate well to the community level. At the end of the report is a table "Amalgamation of C&I appropriate for the North American Test," which presents interesting form of organization: principle – criterion – indicator. It also lists some specific indicators.

Sustainability of the Northeastern Area, Database of Sustainability/Criteria and Indicators Efforts, http://www.na.fs.fed.us/sustainability/database.htm, by Sherri Wormstead, USDA Forest Service, Northeastern Area, phone: (603) 868-7737.
Excellent list of initiatives/projects that address criteria and indicators of forest sustainability, including efforts internationally, nationally, and across the 20 states served by the USDA Forest Service's Northeastern Area. Provides links to many of the initiatives/projects. Classifies the sustainability efforts into the following main categories:

- Forest sustainability efforts
- Environmental/ecological indicator efforts
- Sustainable Community/sustainable development efforts
- Other efforts.

LUCID (Local Unit Criteria and Indicator Development project), Frameworks for Criteria and Indicator Development, LUCID Update, Issue 5, April 2001, web site: http://www.fs.fed.us/institute/lucid/LUCID_Newsletter_5.pdf
This publication provides a way to classify various frameworks for developing indicators into six main types: Issues-based, Goal-based, Sectoral-based, Ecosystem component-based, Causal-based, Systems-based. According to this classification the Montreal Process uses *a hybrid framework* that consists of some aspects of an ecological systems approach in conjunction with some aspects of issues and goal-based frameworks. LUCID has adopted a *systems approach*.

Forest Inventory and Analysis (FIA) Data Base Retrieval System, Southern Research Station, North Central Forest Experiment Station, Rocky Mountain Research Station, Northeastern Forest Experiment Station, Pacific Northwest Research Station, http://www.srsfia.usfs.msstate.edu/scripts/ew.htm
Forest Inventory and Analysis (FIA) research units have participated in establishing a National Data Base Retrieval System (DBRS). This cooperative database is comprised of common forest resource attributes using compatible formats and represented by a standard set of inventory tables. It allows an interactive dialog that will produce a set of user-defined tables for any state, county, or geographical area within the NC/RMT/NE/SRS regional boundaries. FIA research units also have made the

Eastwide/Westwide data available for downloading (tree, plot, county). Work is underway to include data for the Pacific Northwest (PNW) FIA unit. Ultimately, all contiguous states within the Nation will be represented in the FIA Data Base Retrieval System. This database is an excellent source of information for implementing some indicators at community level. Getting historic data, however, is somewhat problematic.

OIK/OS Web-based Tool, developed by the Wilderness Society.
This is an on-line, map-based tool for getting economic trends information. Located at http://www.eco2eco.net, OIK/OS offers point-and-click creation of custom economic profiles for use in conservation, sustainable development and other planning efforts. OIK/OS includes income and employment data for every county in the Eastern U.S. Using an active mapping interface, you select the county, counties, state or states of interest and, with another click or two, OIK/OS generates tables, graphs, charts and thematic maps on the fly for the geographic area you have selected.

Canadian Model Forest Network
http://www.modelforest.net/
The Canadian Model Forest Network web site provides extensive information including a searchable database of tips on how to develop an indicator initiative based on the work done in 10 different forests throughout Canada. Each model forest serves as a demonstration of partners representing a diversity of forest values, working together to achieve sustainable forest management.

Gogebic County, Michigan, Contact information for Gogebic County Forestry Office: http://www.gogebic.org/forestry.htm
The sustainable forestry work in this county began in 1999 with the establishment of Forest Advisory Coordinating Team – a coalition of residents from all over the county, representing a wide range of professional backgrounds and interests. The Group first agreed upon a vision for sustainable forestry in the County and then developed indicators within the four key elements of this vision: forest management, economic health, ecological values and social/cultural values. The work is underway to collect data and implement the indicators to evaluate baseline conditions and trends, and promote sustainable resource use in the County.

Multiparty Monitoring for Sustainable Natural Resource Management, by Cassandra Moseley and Lisa Wilson, December 2002, available at http://ewp.uoregon.edu/guidebook or http://thewatershedcenter.org.
This handbook is designed to help communities and their agency partners monitor activities related to ecosystem management and community forestry, especially implementation of the National Forest Plan. It is primarily focused on public-lands issues, especially in the West but many of the indicators could be adapted in different contexts. The Handbook offers suggestions about how to develop a multiparty monitoring program for four areas: employment results (quality jobs) of restoration and maintenance of public lands; utilization of by-products of ecosystem management; grants and other investments; ecological effects of fire restoration efforts.

Measuring Community Success and Sustainability: An Interactive Workbook, by Flora C., M. Kinsley, V. Luther, M. Wall, S. Odell, S. Ratner, J. Toposky, North Central Regional Center for Rural Development, Iowa State University.
This workbook describes a process to help communities learn how to measure the local or regional impacts of economic and community development processes that enhance rural community sustainability. The approach used is inputs-activities-outputs-outcomes. Five main outcomes are discussed, including specific measures, sources of information and advice on implementation. These outcomes were chosen using results of a rural communities' survey, conducted by the North Central Regional Center, and include:

- increased use of skills, knowledge and ability of local people;
- strengthened relationships and communication, improved community initiative, responsibility and adaptability;
- sustainable, healthy ecosystems with multiple community benefits; and
- appropriately diverse and healthy economies.

The Workbook is available from the NCRCRD: email jstewart@iastate.edu, website: http://www.ncrcrd.iastate.edu

Guide to Sustainable Community Indicators, Second Edition, 1996, by Maureen Hart.
This is a useful tool for any community that has decided to develop and implement sustainability indicators. The Guide defines sustainability and indicators of sustainable community. It introduces a few key organizing frameworks for developing indicators and outlines the advantages and disadvantages of each one. The Guide provides specific examples of sustainability indicators and explains the difference between them and traditional measures. A list of community sustainability indicators, existing community indicator projects, data sources and other useful resources are included at the end.
To order the Guide send an email to admin@sustainablemeasures.com or see the order form at www.sustainablemeasures.com.